Remarks

In the office action mailed June 30, 2005, claim 23 was objected to and all the claims were rejected under 35 USC 103 based on the Noda et al., publication US 2001/0004124. The above amendment clarifies claim 23 and further defines the active region of the device as comprising two highly doped regions of the same dopant polarity. In other words, the active region includes the emitter and collector of an IGBT or the source and drain of a mosfet. The field plates of the claims are located outside the active region and between the active region and the edge of the device. Other claims are amended to remove the expression "active area" and substitute the expression "active region" in order to keep the terminology of the claims consistent.

The invention is patentable over the art of record because the field plates of the reference are not in the location called for by the claims. For example, claim 20 positions the field plates between the active region of the device and the outer edge of the substrate. In the reference the field plates 15-1, 15-2. 11a, and 12a are located in the active region. The active region lies between the source and drain and the field plates are over that region, not between the active region and the edge. Noda has no field plates between the source and the edge.

In sharp contrast, the field plates of the invention are outside of the active region of the device. See Figure 4A of the application. Note how the emitter (source) 50 is to the right and edge of the die is to the left. Figure 4A is truncated on the right and on the bottom and does not show the full lateral and vertical extent of the device. However, the device is described in the specification as an IGBT and those skilled in the art understand its structure is similar to the one first patented in U. S. Patent No. 4,364,073. IGBTs are vertical devices and their current travels between the emitter and the collector. The invention improves such devices and other vertical devices such as vertical mosfets by evening out the electric fields in the edges of the non-active regions of the device.

Applicants believe the examiner, as one skilled in the art, is familiar with lateral and vertical power devices. Applicants also believe one skilled in the art would understand that the active region of a device is defined by the region where current flows, i.e., between the source and drain or the emitter and collector. As such, one skilled in the art would immediately understand that the field plate structures in Noda are between the source and drain and thus are in the active region of Noda's lateral mosfet and thus do not read on the claims of the application.

It is submitted that the application as amended is now in condition for allowance.

Respectfully submitted,
HISCOCK & BARCLAY, LLP

By: ______________________
Thomas R. FitzGerald
Reg. No. 26,730
2000 HSBC Plaza
Rochester, NY 14604
Tel: (585) 325-7570
Fax: (585) 325-5458